



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/562,004

08/14/2006

Paul A. Cain

Q92367

1102

23373 7590 03/27/2008
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

KUO, WENSING W

ART UNIT

PAPER NUMBER

2826

MAIL DATE

DELIVERY MODE

03/27/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,004	Applicant(s) CAIN ET AL.	
	Examiner W. Wendy Kuo	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 74-146 is/are pending in the application.
- 4a) Of the above claim(s) 74-82, 100-104 and 106-146 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 83-99 and 105 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/23/2005; 11/30/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II, Species C, claims 83-99 and 105 in the reply filed on 12 February 2008 is acknowledged.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the United Kingdom on 02 July 2003. It is noted, however, that applicant has not filed a certified copy of the 0315477.0 application as required by 35

U.S.C. 119(b). ***Oath/Declaration***

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

It was not executed in accordance with either 37 CFR 1.66 or 1.68. (The oath/declaration is missing the signature of one of the inventors).

Claim Objections

4. Claims 86 and 93 are objected to because of the following informalities: the claims have improper antecedent basis; "the first body" is not mentioned in independent claim 83 from which the claims depend. For the remainder of this Office action, "the first

body” will be interpreted to mean “the first electrode.” Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 83-99 and 105 are rejected under 35 U.S.C. 102(e) as being anticipated by Sirringhaus et al. (US 2005/0151820) (hereinafter Sirringhaus).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

7. With respect to claim 83, Sirringhaus (e.g. Figure 1) teaches a method for fabricating a rectifying diode on a substrate, comprising:

- Forming a first electrode 3 of a first conductive material in a first region of the substrate [0090];

- Depositing a liquid comprising a second conductive material (6, 7, 8) to come in contact with the first electrode and to form a second electrode of the second conductive material in a second region of the substrate spaced from the first region ([0033], [0039]);
- Preparing the surface of the first electrode prior to the deposition of the liquid comprising the second material to repel the liquid ([0033], [0042]);
- Wherein the shortest distance between the first electrode and the second electrode defines the thickness of the active semiconducting layer of the rectifying diode ([0039] and [0089]-[0090]) (*note that since a range of devices may be made and the shortest distance between the first and second electrodes defines the thickness of the active layer (channel) of a TFT, it is implicit that the shortest distance between the first and second electrodes will define the thickness of the active layer of the rectifying diode).

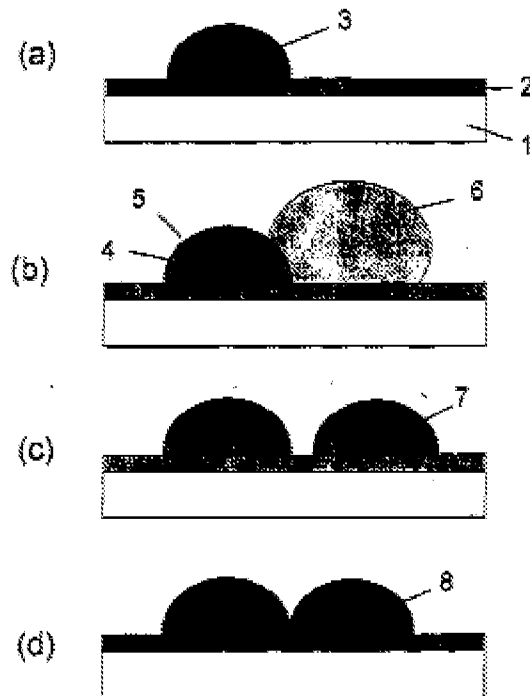


Figure 1

8. With respect to claim 84, Sirringhaus teaches that the method comprises the additional step of depositing at least one semiconducting layer in the region between the first and second electrodes [0090].

9. With respect to claim 85, Sirringhaus teaches that the first electrode is also deposited from a liquid [0033].

10. With respect to claim 86, Sirringhaus teaches that the composition of the first body has a tendency to segregate to form a surface region over the first material, the surface region having a different composition from the first material ([0045], [0050]).

11. With respect to claim 87, Sirringhaus teaches that the surface region is semiconducting, and forms at least part of the active semiconductor layer of the rectifying diode ([0058], [0067]).

12. With respect to claim 88, Sirringhaus teaches that the first and second materials are essentially the same [0042].

13. With respect to claim 89, Sirringhaus teaches that the first composition is a solution of at least two components having a tendency to segregate [0045].

14. With respect to claim 90, Sirringhaus teaches that one of the components is a polymer with a tendency to segregate to the surface of the first composition ([0045], [0047]).

15. With respect to claim 91, Sirringhaus teaches that one of the components is a diblock copolymer comprising a relatively polar and a relatively non-polar block ([0043], [0045], [0058]).

16. With respect to claim 92, Sirringhaus teaches that one of the components is a surfactant [0045].

17. With respect to claim 93, Sirringhaus teaches that the method comprises treating the first body prior to deposition of the liquid of the second composition so as to modify at least one physical or chemical property of the surface of the first electrode, thereby forming a surface region over the first material ([0042]-[0043]).

18. With respect to claim 94, Sirringhaus teaches that the step of modifying the surface of the first electrode comprises exposing the substrate to a plasma [0044].

19. With respect to claim 95, Sirringhaus teaches that the plasma contains fluorinated species [0044].

20. With respect to claim 96, Sirringhaus teaches that the surface of the first and second electrodes exhibit different work functions [0082].

21. With respect to claim 97, Sirringhaus teaches that the difference in work function between the first and second electrodes is generated by the step of preparing the surface of the first electrode prior to the deposition of the liquid comprising the second material ([0044], [0046]).

22. With respect to claim 98, Sirringhaus teaches that the surface of the first and/or second electrodes are treated after being deposited to modify the work function of at least one of the first and second electrodes [0044].

23. With respect to claim 99, Sirringhaus teaches that the conductive material of the first electrode has a different work function than the conductive material of the second electrode [0082].

24. With respect to claim 105, Sirringhaus teaches that the material of at least one of the first or second electrodes is a printable metal [0136].

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kobayashi (US 2003/0143339) discloses a method of forming an organic EL device that comprises the step of treating a substrate for water repellency.

Kawase (WO 02/073712) discloses a method of patterning a substrate to form electrodes of an organic semiconductor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Wendy Kuo whose telephone number is (571)270-

1859. The examiner can normally be reached Monday through Friday 7:00 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue A. Purvis can be reached at (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W. Wendy Kuo
Examiner
Art Unit 2826

WWK

/Sue A Purvis/

Supervisory Patent Examiner, Art Unit 2826